

Section 893— Miscellaneous Planting Materials

893.1 General Description

This section includes the requirements for miscellaneous planting materials, such as the following:

- Plant topsoil
- Mulch
- Vines, shrubs, trees, and miscellaneous plants
- Inoculants
- Porous material
- Tree paint
- Prepared plant topsoil
- Stakes
- Organic soil additives

893.1.01 Related References

A. Standard Specifications

Section 814—Soil Base Materials

Section 822—Emulsified Asphalt

B. Referenced Documents

“USA Standard for Nursery Stock” of the American Association of Nurserymen, Inc.

“Standardized Plant Names”

GDT 41

893.2 Materials

893.2.01 Plant Topsoil

A. Requirements

1. Use plant topsoil with the following characteristics:
 - Obtained from well-drained, arable land, but not from fields where tobacco grew in the last three years, or where Johnson grass or kudzu is present.
 - Friable, loamy soil with between 2 and 30 percent organic matter. Determine the percentage by measuring the loss on ignition of oven-dried samples ignited at 1,200 °F (650 °C).
 - Reasonably free from subsoil, heavy or stiff clay, coarse sand, and other deleterious substances.
 - Has no toxic amounts of acid or alkaline elements.
 - Can sustain healthy plant life.
 - Meets the grade requirements of Subsection 814.2.01.A.8.
2. The Department reserves the right to inspect all plant topsoil during the planting period. The Department will reject any material that does not meet the Specifications.
3. Do not use frozen, muddy, or nonfriable topsoil.
4. Before delivering any topsoil to the job site, clear stones larger than 2 in (50 mm) size and roots, sticks, brush, coarse litter, and other substances that would interfere with mixing, planting, and maintenance.

B. Fabrication

General Provisions 101 through 150.

C. Acceptance

General Provisions 101 through 150.

D. Materials Warranty

General Provisions 101 through 150.

893.2.02 Mulch**A. Requirements**

1. Use mulch materials from two groups:
 - a. Grassing and Erosion Control: Threshed rye, oat or wheat straw; or Bermuda grass hay
 - b. Vine, Shrub, Tree, and Miscellaneous Plant Plantings: Pine straw, pine bark, or hardwood mulch (see Subsection 893.2.09.A.2 for pine bark and hardwood mulch).
2. Use mulch materials from either group that meet the following requirements:
 - Are accepted by the Engineer.
 - Can be distributed uniformly when properly loosened
 - Produce the desired results
 - Meet the moisture requirements specified herein
 - Contain no excessive amounts of noxious weed seeds
3. Noxious Weed Seeds
Do not use hay or straw mulch material that has an excessive quantity of matured seeds from noxious weeds or other species that would harm surrounding farmland.
4. Moisture Content
Ensure that the mulch material is reasonably dry, especially when bituminous treated mulches must retain the bituminous material.

B. Fabrication

General Provisions 101 through 150.

C. Acceptance

1. If the material feels damp, the Department will use GDT 41 to test for moisture content.
2. To pass, materials shall have a moisture content of 12 percent or less.

D. Materials Warranty

General Provisions 101 through 150.

893.2.03 Vines, Shrubs, Trees, and Miscellaneous Plants**A. Requirements**

1. Use stock that meets the requirements of all State and Federal Laws for inspection of plant diseases and infestation.
2. Use nursery grown and collected plant materials that meet all regulations of the States of their origin and destination, and that meet Federal regulations governing interstate movement of nursery stock.
3. Use stock that is true to name and variety and is of first class quality with well developed tops and vigorous, healthy root systems.

NOTE: Use plant names according to the edition of “Standardized Plant Names” in effect at the time of Invitation For Bids.

4. Use only nursery-grown stock that have had their roots pruned during their development, unless otherwise specified.
 - a. The Department will not accept plants and/or trees that are severely cut back or pruned to conform to contract size requirements.
 - b. The Department will reject trees and shrubs that are undersized, have poorly developed tops or root systems, or are infected with disease or infested with insects.
5. Certification
Furnish all certificates of disease and infestation inspection and a list of plant materials received from each source to the Engineer.

893.2.04

B. Fabrication

General Provisions 101 through 150.

C. Acceptance

The Department will inspect plants at the nursery whenever necessary.

1. Inspect and grade living plants for type, size, and quality according to the requirements and recommendations of “USA Standard for Nursery Stock” of the American Association of Nurserymen, Inc.
2. Even if the Department accepts materials after a test at the source, the Department may inspect the stock during planting and reject any that does not meet specification.
3. The Department will reject any of the following:
 - Stock damaged during digging, loading, transporting, planting, and transplanting
 - Broken or loose balls or balls of less diameter than that specified
4. Replace rejected stock at your own expense.
5. Dispose of rejected stock to the satisfaction of the Engineer.

D. Materials Warranty

1. Delivery
 - a. Give the Engineer at least 24 hours notice before delivering any stock to the job site.
 - b. Send an invoice with each shipment that shows the sizes and varieties of material included.
2. Packaging

Pack stock for shipment to properly protect against drying, freezing, breaking, or other injury.

 - a. Pack and clearly label each variety in separate bundles.
 - b. Designate plants that are to be balled and burlapped as “B&B.”
 - 1) Place as many fibrous roots as possible in the ball.
 - 2) Securely and tightly wrap the ball with burlap. Tie a cord or wire around the ball, or pin it with nails to hold the burlap in place.
 - c. For remaining plants, dig them bare-rooted and puddle them immediately after digging them up and when receiving them at the Project. Use the standard practices of the nursery trade.

893.2.04 Inoculants

A. Requirements

1. Use a pure culture of nitrogen-fixing bacteria for an inoculant to treat seeds. Select an inoculant for maximum vitality and ability to transform nitrogen from the air into soluble nitrates and deposit them into the soil.
2. Use only purebred cultures less than one year old.

B. Fabrication

General Provisions 101 through 150.

C. Acceptance

The Engineer will review acceptable cultures.

D. Material Warranty

General Provisions 101 through 150.

893.2.05 Porous Material

A. Requirements

Protect roots with gravel, broken stone, slag, broken concrete, brick bats, or other acceptable coarse aggregate ranging in size from 1-1/2 to 4 in (38 to 100 mm). Excessive amounts of lime in the form of brick mortar shall be grounds for rejection.

B. Fabrication

General Provisions 101 through 150.

C. Acceptance

The Department will reject the material if it has excessive amounts of lime in the brick mortar.

D. Material Warranty

General Provisions 101 through 150.

893.2.06 Tree Paint**A. Requirements**

Use tree paint that meets the requirements of Subsection 822.2.01, or use any commercial tree paint with antiseptic qualities.

B. Fabrication

General Provisions 101 through 150.

C. Acceptance

See Subsection 822.2.01.C.

D. Material Warranty

General Provisions 101 through 150.

893.2.07 Prepared Plant Topsoil**A. Requirements**

1. Use prepared plant topsoil made from plant topsoil, organic soil additive, commercial fertilizer, and lime, as described in Subsection 893.2.07.B.
2. Base any volume for peat moss used as an organic soil additive on the compressed bale.
3. For loose peat, double the volume.

B. Fabrication

1. Make prepared plant topsoil from the following:
 - Four parts plant topsoil, Subsection 893.2.01
 - At least one part organic soil additive, by volume, Subsection 893.2.09
 - A commercial fertilizer, grade 6-12-12, at the rate of 3 lb/yd³ (1.8 kg/m³)
 - Lime at the rate of 5 lb/yd³ (3 kg/m³)
2. Base the above volumes on naturally compacted, undisturbed topsoil.

C. Acceptance

See the appropriate subsections.

D. Material Warranty

General Provisions 101 through 150.

893.2.08 Stakes**A. Requirements**

1. Use wood stakes as indicated in the Specifications or shown on the Plans. Use the stakes for vine, shrub, tree, and miscellaneous plantings.
2. Saw wood stakes from either oak or gum. Use only stakes that are number two common or better, either rough or dressed.

B. Fabrication

1. Cut the stakes from sound, solid, undecayed wood, without unsound knots.
2. Shape stakes to within 1/4 in (6 mm) for all dimensions.
3. Taper all stakes at one end.

C. Acceptance

The Department will reject any stake that does not meet the following test:

1. Draw a line from the center of the top to the center of the butt of each stake.
2. Ensure that the line stays within the body of the stake and is not more than 1 in (25 mm) from the geometric center of the stake.

D. Materials Warranty

General Provisions 101 through 150.

893.2.09 Organic Soil Additives**A. Requirements**

Use four types of organic additives: peat moss, pine bark, compost, and hardwood mulch.

1. Peat Moss

Use peat moss that meets the following requirements:

- Be granulated sphagnum virtually free from woody substances, consisting of at least 75 percent partially decomposed stems and leaves of sphagnum
- Be essentially brown in color
- Be free of sticks, stones, and mineral matter
- Be in an air-dry condition
- Shows an acid reaction of 3.5 pH to 5.5 pH
- Meets State and Federal regulations

2. Pine Bark

Use pine bark that meets the following requirements:

- Be obtained from disease-free wood, 100 percent of which is 9 in² (5625 mm²) or less in area, and 50 percent is more than 1 in² (625 mm²) in area.
- Contain no noxious weed seeds, soil, sawdust or any substance toxic to plant growth
- Be at least two years old

3. Compost

Use compost that meets the following requirements:

- Be organic materials that have undergone biological decomposition
- Be disinfected using composting or similar technologies
- Be stabilized so it is beneficial to plant growth
- Be mature, dark brown or black in color and have minimal odors
- Contain no human pathogens
- Fall within a pH range of 5 to 8

Provide to the Department a list of all the ingredients in the original compost mix in the order of their relative proportions on a weight basis.

4. Hardwood Mulch

Use hardwood mulch that meets the following requirements:

- Derived from disease-free deciduous trees
- Particle size of less than 1 in (25 mm) diameter and less than 3 in (75 mm) in length. Hardwood mulch shall complete two composting cycles of 140 °F (60 °C) so that all viable weed seeds are destroyed and no further decomposition due to nitrification will occur
- Free from toxic levels of acidity and alkalinity

Provide test results stating that the ingredients meet Federal, State, and local requirements for priority pollutant limits and do not contain levels of any chemicals that are harmful to plants or humans.

B. Fabrication

General Provisions 101 through 150.

C. Acceptance

The Department will accept the materials based upon their compliance with this specification.

D. Material Warranty

General Provisions 101 through 150.

Section 894—Fencing

894.1 General Description

This section includes the requirements for the following types of fence and fencing accessories:

- Chain link fence
- Woven wire fence
- Barbed wire
- Ground rods
- Field fencing
- Silt fabric fencing

894.1.01 Related References**A. Standard Specifications**

Section 862—Wood Posts and Bracing

Section 881—Fabrics

B. Referenced Documents

ASTM			AASHTO
A 116	A 392	A 817	M 181
A 121	A 491	A 824	
A 123/ A 123 M	A 584	F 626	
A 153/ A 153M	A 585	F 1043	
A 239	A 702	F 1083	

894.2 Materials**894.2.01 Chain Link Fence****A. Requirements**

Ensure that zinc or aluminum coated steel fabric, fittings, accessories, and posts for chain link fence meet the following requirements.

1. Fence Fabric

Use woven wire with reasonably uniform 2 in (50 mm) square mesh. Ensure that the mesh has parallel sides and horizontal and vertical diagonals of uniform dimensions. Use the wire size specified on the Plans or in the Proposal.

- a. Zinc Coated: Use steel fabric that meets the requirements of ASTM A 392. Ensure that the wire and hot-dip coating meet the requirements of ASTM A 817 Type II, Class 1.
- b. Aluminum Coated: Use steel fabric that meets the requirements of ASTM A 491. Ensure the wire and coating meets the requirements of ASTM A 817, Type I.

2. Fittings and Accessories

- a. Tension Wire: Use wire that meets the requirements of ASTM A 824 Type I for aluminum coated fabric, or Type II, Class 2 for hot-dipped, zinc-coated fabric.